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Juxtaposition of Micro and Macro Dynamics of Dividend Policy on Stock Price Volatility in Financial Sector of Pakistan: (Comparative Analysis through Common, Fixed, Random and GMM Effect)

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Abstract
The purpose of this study is to analyze the dividend policy dynamics in context to firm specific and macroeconomic variables with stock price volatility in the financial sector of Pakistan. Panel data is used for the period 2006-2014 to identify the common, fixed, random and GMM effect. It is concluded that dividend payout ratio, market value, interest volatility and inflation volatility have positive significant correlation with price volatility. Common effect model shows that dividend payout and interest volatility has a significant positive impact on the share prices. Whereas fixed effect model is more appropriate and good fit than random effect model and model indicate that dividend payout ratio has significant positive impact and market volatility has significant negative impact on stock prices. GMM results also support the fixed and random effect outcomes with more robustness. This study significantly contributes in dividend policy decisions and elaborates the dynamic roll of micro and macro variables on stock price volatility in financial sector of Pakistan.

1. Introduction

Generally the main goal of every firm is to maximize the wealth of shareholders by increasing the market value of their share of investment. That's why each firm endeavors towards satisfying the goal by using two different ways by providing the dividend distribution to its shareholders and secondly by re-investing through dividend reinvestment plan. Dividends are defined as the distribution of incomes between the shareholders in relation to their ownership of shareholders. Dividend is always paid to shareholders on after tax income. Arnold (2008) dividend policy means increasing shareholders wealth by increasing the purchasing power of shareholders. Dividend policy can be one of the most stable and predictable element in all decisions of the firm if firm adopts a regular dividend policy. Many firms started to pay dividends when the business reaches at the level maturity. If there is irregularity in dividend payments due to firm policies or state factors then shareholder may be uncertain about the dividend cash flow that may cause volatility in the price level. The more substantial volatility shows that the chances of profit or loss are high in short term. So that the value of the volatile stock would differ significantly over the time period and it is tougher to forecast the future value of this stock. Dividend policy remained a source of dispute over number of years in empirical and theoretical research, due to its relevancy with the share price volatility. Paying the large amount of dividends decreases risk and therefore its effect on share price and provides as base for substitution for upcoming income. Nowadays, dividend policy has gone away from the scope of solving the frequency of paying the retain earnings (whether annually, semiannually or quarterly) or cash dividend, to include such problems as whether to distribute the cash via specially-designated or share repurchase rather than regular dividends. That's why, dividend policy reflects how to, balance the priorities of relatively untaxed and highly taxed investors, how to maintain and to improve the value of its stock in market. Setting the dividend payouts with the perspective of long-term growth opportunities increase the financial elasticity and decreased the financial resistances related to increasing the external capital. Hereafter, a fast developing firm, with an incremental of positive NPV projects, should hold a larger number of shares of its operating cash flow than a firm having some profitable investment chances.

The previous researches related to impact of dividend policy or relation of dividend policy with stock price behavior has been performed mostly on Non-financial sector of firms listed on Karachi Stock Exchange (KSE). Few researchers have worked on "impact of

dividend policy or announcement on share price value of banking sector in Pakistan." after financial turmoil.

The purpose of this study is to analyze the dividend policy dynamics in context to firm specific and macroeconomic variables with stock price volatility in the financial sector of Pakistan which is still and unaddressed issue in the available financial literature of Pakistan. This research is identifying the specific differentiation that how key micro firm variables and dividend policy effect the stock price volatility in financial sector of Pakistan and how financial sector dividends are affected by the key macroeconomic policies in a juxtaposed manner.

2. Literature Review

Asghar, Shah, Hamid and Suleman (2011) investigated the effect of dividend policy on stock price risk in the banking sector of Pakistan for the period 2005-2009. The outcome of the study indicates that the degree of relationship of price volatility and dividend yield is somewhat important as compare to the other variables. However price volatility has negative association with the growth in assets.

Nazir, Abdullah and Nawaz (2012) analyzed the impact of dividend policy dynamics on the volatility of stock values for financial firms of Pakistan by taking earning instability, assets growth, company size and debt. Fixed Effect model identified that there is significant negative linkage between dividend yield and price volatility. Moreover price volatility and dividend payout has interconnectivity.

Habib, Kiani and Khan (2012) examined relationship between share price volatility and the dividend policy in Pakistani equity market and concluded that share prices and dividend yield are positively linked but payout ratio is negatively associated.

Iqbal, Ahmad, Ullah and Abbas (2014) examined the consequences of variation in dividend on the stock value. They taken data for three banks and found that dividend has positive relationship with the earning per share and negative behavior with the stock value.

Anwar, Singh and Jain (2015) visualized the reflection of expectations of investors on risk and return and evaluated the effect of cash dividend announcements on stock returns volatility. Results reflects that the decline in risk of the company volatility of stock returns is due to enhanced post cash dividend announcement however no significant results were identified on these grounds.

Lee and Mauck (2016) investigated three dynamics of dividend initiation, increased

announcements and idiosyncratic volatility aspects. Dividend signaling rose due to increased levels of idiosyncratic volatility which is related with higher announcements of abnormal returns on initiation of increased dividends. A high idiosyncratic volatility firm is linked with higher positive post event return drift.

Shah and Noreen (2016) examined the relationship between stock price volatility and dividend policy of KSE listed companies of Pakistan. The fifty firms have been selected from non-financial sectors from the period of 2005-2012. This study concludes that there exist significant negative relationship between stock price volatility and dividend policy proxies. Further study established significant positive relationship between the control variables of AG, EV, EPS and the dependent variables of Stock price volatility in KSE, However remaining two control variables of FS and LD have negative relation to stock price volatility.

Archana, G. (2016) studied the affect of macroeconomic forces on dividend policy for the corporate sector of India by analyzing the 319 companies listed on BSE by using the panel data for the period 2005-2015. Inflation, Index of Industrial production, interest rates and wholesale price index variables are used as independent variables and dividend payout ratio used as dependent variables. It is concluded that no macroeconomic variable have significant impact on dividend policy in India.

3. Methodology of research

Panel data for 21 commercial banks have been taken for the period 2006 to 2014. The below function is used for OLS, Fixed Effect Model, Random Effect Model, Hausman Test and GMM.

Stock Price Volatility = ƒ (DP, DY, EV, GA, INFV, INTV, MV)

Common Effect Regression Model:

$$\ln(PV_{it}) = \beta_0 + \beta_1 DP_{it} + \beta_2 \ln(DY_{it}) + \beta_3 EV_{it} + \beta_4 GA_{it} + \beta_5 INFV_{it} + \beta_6 INTV_{it} + \beta_7 MV_{it} + \varepsilon_{it} \quad (1)$$

Whereas,

Micro Variables

Dp = Dividend Payout ratio

Ln(DY) = Natural Log of Dividend Yield

EV= Earning Volatility

GA= Growth

Macro Variables

INFV= Inflation Volatility

INTV= Interest Rate Volatility

MV = Market volatility

Fixed Effect Model:

A Fixed effects model provides a constant slope however it is differentiated from intercepts in comparative to cross-sectional company's data. This model controls the potential degree of relationship between the unabsorbable individual effects and other regressors.

Pooled regression can be used to transform the model to estimate beta with a natural phenomenon and time-invariant variable can be eliminated through ($\boldsymbol{\omega\gamma}$)

$$\boldsymbol{B_{\omega\gamma}} = \left[\sum_1^N \sum_1^T (\boldsymbol{m_{it}} - \bar{\boldsymbol{m}}_{\boldsymbol{it}})(\boldsymbol{m_{it}} - \bar{\boldsymbol{m}}_{\boldsymbol{it}})\right]^{-1}\left[\sum_1^N \sum_1^T (\boldsymbol{m_{it}} - \bar{\boldsymbol{m}}_{\boldsymbol{it}})(\boldsymbol{m_{it}} - \bar{\boldsymbol{m}}_{\boldsymbol{it}})\right] \quad (2)$$

The fixed effect estimators are given by:

$$\widehat{\emptyset_{\boldsymbol{i}}} = \boldsymbol{l} - \bar{\boldsymbol{m}}_{\boldsymbol{t}}\widehat{\boldsymbol{\beta\omega\gamma}} \quad (3)$$

It is the best advantage of fixed effect model that the error terms may be relevant to the individual effects of the model. On the other hand if the group effects are unrelated with group means of the regressors, it is better to apply a thriftier parameterization of the panel model.

Random Effect Model:

The random effects model is a regression equation with a random constant term. A specific effect is visualized as an outcome of a random variable. In simple terms, a static random effects model may be explained as below.

$$\boldsymbol{k_{it}} = \beta\boldsymbol{l_{it}} + \boldsymbol{m_{it}} \quad (4)$$

$$\boldsymbol{m_{it}} = \boldsymbol{s_i} + \boldsymbol{e_{it}} \quad (5)$$

Where $\boldsymbol{\mu_{it}}$ is independent and identical distribution such that:

$$(-\boldsymbol{E}(\boldsymbol{s_i}) = \boldsymbol{E}(\boldsymbol{e_{it}}) = \boldsymbol{0}$$

$$(-\boldsymbol{E}(\boldsymbol{s_i e_{it}}) = \boldsymbol{0}$$

$$\text{-E}\,(s_i, s_j) = \begin{Bmatrix} \sigma^2 & i = j \\ 0 & i \neq j \end{Bmatrix}$$

$$\text{-E}\,(\boldsymbol{e_{it}}, \boldsymbol{e_{js}}) = \begin{Bmatrix} \boldsymbol{\sigma^2} & \boldsymbol{i = j, i = j} \\ \boldsymbol{0} & \boldsymbol{i \neq j, i \neq j} \end{Bmatrix}$$

$$-\boldsymbol{E}\,(\boldsymbol{s_i}, \boldsymbol{l_{it}}) = (\boldsymbol{e_{it}}, \boldsymbol{l_{it}}) = 0 \quad (6)$$

The suitable GLS estimator of beta indicates that the random estimator, provided by $\boldsymbol{\beta_{GLS}}$ is consistent.

The Hausman Test

The suitable choice between fixed effect and random effect techniques investigated that either the regressor are related with individual effect or not. Housman statistics is a distance measure in between the fixed and random effect estimators. Therefore we can test actually H_o, that random effects are consistent and efficient, whereas H_1 indicate that random effects are inconsistent.

The Housman Test uses the below econometric approaches.

$$\boldsymbol{HM} = (\widehat{\boldsymbol{\beta eta}}^{\boldsymbol{FE}} - \widehat{\boldsymbol{\beta eta}}^{\boldsymbol{RE}}) \, [\boldsymbol{Var}(\widehat{\boldsymbol{\beta eta}}^{\boldsymbol{FE}}) - \boldsymbol{Var}\,(\widehat{\boldsymbol{\beta eta}}^{\boldsymbol{FE}})\,]^{-1}(\widehat{\boldsymbol{\beta eta}}^{\boldsymbol{FE}}) - (\widehat{\boldsymbol{\beta eta}}^{\boldsymbol{FE}}) \sim \boldsymbol{x}^{\mathbf{2}}\,(\mathrm{k}) \qquad (7)$$

Generalized Methods of Moment Model (GMM)

GMM with instrumental variables circumvent problems with correlations of errors. The variables of Dividends, Earning Volatility, Growth, Inflation volatility and Interest rate volatility are the specified instrumental variables in dynamic panel data analysis. The computational work on dividend policy affects the inconsistency on mislaid variables and endogeneity biases and GMM estimator resolve this panel data issue and counts for the dynamics of dividend policy.

The population moments expressed in below manner with the sample moments based for an arbitrary value δ is

$$\boldsymbol{gn}\,(\boldsymbol{\delta}) = \frac{\mathbf{1}}{\boldsymbol{n}} \sum_{\boldsymbol{t=1}}^{\boldsymbol{n}} \boldsymbol{g}\left(\boldsymbol{w}_{\boldsymbol{t,}}\, \boldsymbol{\delta}\right) = \frac{\mathbf{1}}{\boldsymbol{n}} \sum_{\boldsymbol{t=1}}^{\boldsymbol{n}} \boldsymbol{xt}\;\; (\boldsymbol{y} - \boldsymbol{z}_{\boldsymbol{t}}^{\boldsymbol{t}}\, \boldsymbol{\delta}) \qquad (8)$$

These moment conditions are a set of linear equations along with unknown parameters. The cross-section results of regression are inconsistent estimation and provide biased results which are not reliable because due to constant for all the cross-sections is same. The GMM model permits the dividends to affect the current price volatility; the dependent variable is most likely to be correlated with the firms' specific effect and as well with the macroeconomic estimation by using OLS which provides inconsistent and biased estimates for the model. To attain the consistent estimations, the model should be the estimation of fixed effect and then we should use the instruments to eliminate the inconsistency which can be aroused from endogeneity of the regressor. Arellano and Bond (1991) also used this approach.

4. Results

Table 1: Descriptive Statistics

	Ln (PV)	Ln (DY)	DP	EV	GA	INFV	IV	MV
Mean	1.1141	4.95	0.6104	0.1566	8.8976	-2.47	5.87	2.94
Median	1.0088	3.22	0.0002	0.0114	0.1124	0.09434	-0.016	0.04
Std. Dev.	1.4579	5.1407	4.6780	1.4711	93.4344	0.341853	0.197	0.23
Skewness	0.1365	0.2379	13.2547	11.5279	13.1036	-0.264164	1.429	-0.81
Kurtosis	2.7043	1.2838	179.8871	143.041	176.6341	2.427615	4.638	2.92
Jarque-Bera	1.2756	24.9761	251935.5	158627.9	242830.6	4.778195	85.468	21.21
Probability	0.0284	0.0000	0	0	0	0.091712	0	0.00
Observations	189	189	189	189	189	189	189	189

Table 1 indicates the behavior of the data in the given panel for the period 2006-2014. The panel data indicates that that only inflation volatility and market volatility has negative skewness and all other variables have positive skewness and the growth in assets and dividend yield have high level of riskiness in comparison to other variables. Whereas, Jarque-Bera value indicates the normality of the panel data.

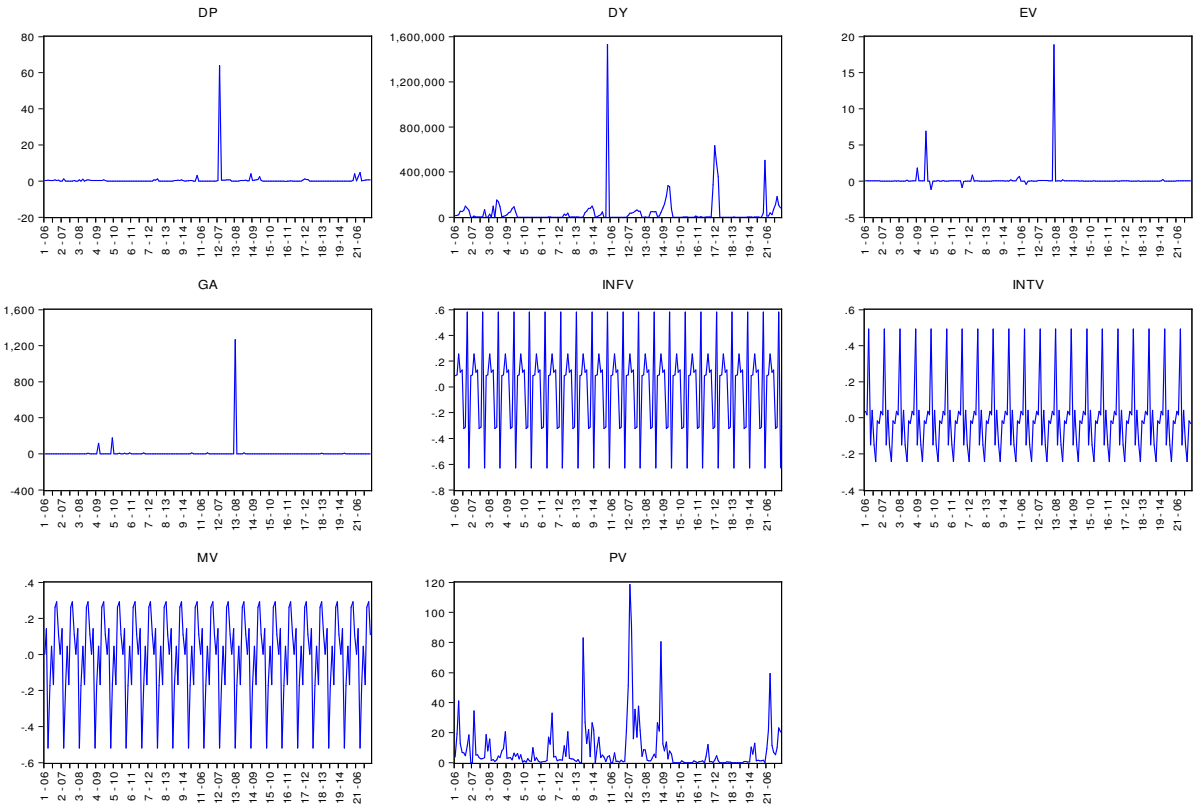

Figure 1: Panel Graph for the Variables

Figure 1 indicates that the graphical depiction of each variable in the panel for the period 2006-2014.

Table 2: Correlation Matrix among Panel Variables

Correlation Probability	DP	Ln(DY)	EV	GA	INFV	INTV	MV	Ln(PV)
DP	1							
Ln(DY)	0.07044	1						
p-value	[0.335]							
EV	-0.00771	-0.003131	1					
p-value	[0.916]	[0.9659]						
GA	-0.01175	-0.026963	-0.010650	1				
p-value	[0.8725]	[0.7127]	[0.8844]					
INFV	0.061164	0.020401	-0.040164	0.064940	1			
p-value	[0.4031]	[0.7805]	[0.5832]	[0.3747]				
INTV	0.203522	-0.100754	-0.023522	0.174518	0.416727	1		
p-value	*[0.0050]	[0.1678]	[0.7480]	**[0.0163]	*[0.0000]			
MV	-0.162815	0.187805	0.071363	-0.159704	-0.079858	-0.638701	1	
p-value	**[0.025]	*[0.0097]	[0.3292]	**[0.0282]	[0.2747]	*[0.0000]		
Ln(PV)	0.549719	-0.006130	-0.008569	-0.008957	0.158766	0.387223	-0.33889	1
p-value	*[0.0000]	[0.9333]	[0.9068]	[0.9026]	**[0.0291]	*[0.0000]	*[0.0000]	

*Significance level (p<0.01)
** Significance level (p<0.05)
*** Significance level (p<0.1)

Table 2 indicates that dividend payout ratio, market value and interest volatility have positive significant correlation with price volatility at ($p < 0.00001$) as well as inflation volatility also has positive correlation with price volatility at ($p < 0.05$). On the other hand dividend yield, earning volatility and growth in assets have no significance relationship with price volatility.

Table 3: Panel Least Squares

Dependent Variable: Ln(PV)

Method: Panel Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.398732	0.120337	3.313471	0.0011
Ln(DY)	0.138249	0.017018	8.123593	0.000*
DP	0.024025	0.018934	1.268881	0.2061
EV	0.083231	0.058272	1.428322	0.1549
GA	0.000270	0.000933	0.289707	0.7724
INFV	0.312888	0.285421	1.096231	0.2744
IV	1.828464	0.645905	2.830857	0.005**
MV	-0.789379	0.485179	-1.626985	0.1055

R-squared	0.380369	Mean dependent var	1.114138
Adjusted R-squared	0.356405	S.D. dependent var	1.457958
S.E. of regression	1.169637	Akaike info criterion	3.192671
Sum squared resid	247.6174	Schwarz criterion	3.329888
Log likelihood	-293.7074	Hannan-Quinn criter.	3.248261
F-statistic	15.87277	Durbin-Watson stat	0.890276
Prob(F-statistic)	0.000000		

*Significance level (p<0.01)
** Significance level (p<0.05)
*** Significance level (p<0.1)

Table 3 indicates that only dividend yield and market volatility has positive impact on stock price volatility of commercial banks financial assets. R^2 indicates that independent variables explain dependent variable up to 38.03%.

Table 4: Fixed Effect Model

Dependent Variable: Ln(PV)

Method: Panel Least Squares Fixed Effect

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.951005	0.748753	10.61900	0.0000
DP	1.113265	0.163445	6.811249	*0.0000
Ln(DY)	-3.26E-06	5.71E-06	-0.571046	0.5688
EV	0.241237	0.508939	0.474000	0.6361
GA	-0.008595	0.008114	-1.059309	0.2910
INFV	1.986961	2.334193	0.851241	0.3959
INTV	17.24013	5.292333	3.257566	**0.0014
MV	-10.00263	4.004171	-2.498053	**0.0135
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.692659	Mean dependent var	8.453864	
Adjusted R-squared	0.641117	S.D. dependent var	15.96500	
S.E. of regression	9.564131	Akaike info criterion	7.489870	
Sum squared resid	14727.09	Schwarz criterion	7.970129	
Log likelihood	-679.7927	Hannan-Quinn criter.	7.684435	
F-statistic	13.43879	Durbin-Watson stat	2.307346	

Prob(F-statistic)	0.000000	

*Significance level (p<0.01)
** Significance level (p<0.05)
*** Significance level (p<0.1)

The results of Table 4 indicate that the value of standard error of constant is 0.7487, which shows 74% fluctuation in sampling means. The value of dividend payout coefficient is 1.1132 at p<0.01 level which shows that dividend payout has a significant positive impact on share prices but on the other hand the coefficient values of dividend yield and earning volatility are -3.26 and 0.24 respectively and are not significant at any level. The coefficient value of market volatility (MV) is -10.88 at (p< 0.05) level of significance indicate that market price (MV) has negative significant impact on share prices. The value of R^2 is 69.6% which shows that explanatory variables are explaining the 69.6% variation in dependent variable which is higher that common effect model.

Table 5: Random Effect Model

Dependent Variable: Ln(PV)

Method: Panel EGLS (Cross-section random effects)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.842320	1.516038	5.172903	0.0000
DP	1.242134	0.161111	7.709823	*0.0000
Ln(DY)	-2.31E-06	5.59E-06	-0.413072	0.6800
EV	0.207491	0.500689	0.414412	0.6791
GA	-0.009167	0.007985	-1.147912	0.2525
INFV	1.998185	2.334038	0.856107	0.3931
INTV	16.73658	5.289499	3.164114	**0.0018
MV	-9.980960	4.001401	-2.494366	**0.0135
Effects Specification			S.D.	Rho
Cross-section random			6.046405	0.2855
Idiosyncratic random			9.564131	0.7145
Weighted Statistics				
R-squared	0.430048	Mean dependent var		3.942901
Adjusted R-Sq	0.408005	S.D. dependent var		12.96992
S.E. of regression	9.979212	Sum squared resid		18024.82
F-statistic	19.51005	Durbin-Watson stat		1.961076

Prob(F-statistic)	0.000000		
Unweighted Statistics			
R-squared	0.381081	Mean dependent var	8.453864
Sum sqd resid	29657.16	Durbin-Watson stat	1.191889

*Significance level (p<0.01)
** Significance level (p<0.05)
*** Significance level (p<0.1)

The results of Table 5 indicate that the value of standard error of constant is 1.51, which indicate that 15.1% fluctuation in sampling means. The value of dividend payout coefficient is 1.24 at (p<0.01) value of significance which shows that dividend payout has a significant positive impact on the share prices but on the other hand the coefficient values of dividend yield, earning volatility, growth in assets, inflation have no significant impact on price volatility. The coefficient values of interest volatility is 16.7 at p<0.01 level which indicates that interest volatility has positive significant impact on share prices. The coefficient values of market volatility is -9.88 at p<0.01 level which indicate that market price (MV) has negative significant impact on share prices. The value of R^2 is 43% which shows that explanatory variables are explaining 43% variation in dependent variables.

Table 6: Housman Test

Correlated Random Effects - Housman Test

Test cross-section random effects

Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		0.000000	7	1.0000
* Cross-section test variance is invalid. Housman statistic set to zero.				
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var (Diff.)	Prob.
DP	1.113265	1.242134	0.000758	*0.0000
Ln(DY)	-0.000003	-0.000002	0.000000	0.4244
EV	0.241237	0.207491	0.008329	0.7116
GA	-0.008595	-0.009167	0.000002	0.6908
INFV	1.986961	1.998185	0.000723	0.6763
INTV	17.240126	16.736580	0.029987	*0.0036
MV	-10.002629	-9.980960	0.022168	0.8843

*Significance level (p<0.01)
** Significance level (p<0.05)

*** Significance level (p<0.1)

The result of Table 6 shows that the variation value of dividend payout and interest volatility is 0.000758 and 0.029 respectively, is significant at p<0.01 level. This shows that the fixed effect model is more appropriate and good than random effect model.

Table 7: Panel Generalized Method of Moment

Dependent Variable: Ln(*PV)*

Method: Panel Generalized Method of Moments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.501730	0.978600	7.665776	*0.0000
DP	1.651214	0.202885	8.138666	*0.0000
Ln(DY)	4.66E-07	6.87E-06	0.067825	0.9460
EV	0.122344	0.629708	0.194287	0.8462
GA	-0.010641	0.010057	-1.058039	0.2914
INFV	2.042018	3.084902	0.661939	0.5089
INTV	15.10940	6.981225	2.164291	**0.0318
MV	-9.887112	5.278700	-1.873020	**0.0627
R-squared	0.396180	Mean dependent var		8.453864
Adjusted R-sqd	0.372828	S.D. dependent var		15.96500
S.E. of regression	12.64335	Sum squared resid		28933.64
Durbin-Watson stat	1.441730	J-statistic		3.99E-29
Instrument rank	8			

*Significance level (p<0.01)

** Significance level (p<0.05)

*** Significance level (p<0.1)

Results of Table 7 indicate that the value of standard error of constant is 0.978600, which shows the 9.78% fluctuation in sampling means. The value of dividend payout coefficient is 1.65 with the 0.00001 value of significance which shows that dividend payout has a significant positive impact on the commercial banks share prices but on the other hand the coefficient values of Interest Volatility and Market Prices (MV) are 15.109 and -9.88 respectively with the (p< 0.05) and (p<0.10) values of significance which indicate that Interest Volatility has positive insignificant impact as well as Market Value has significant negative effect. The value of growth in assets coefficient is -0.010 with the 0.29 value of significance which shows that growth in assets has an insignificant impact. The value of

R^2 is 39.6% which shows that explanatory variables explaining the 39.6% variation in dependent variable. The value of adjusted R^2 is 37.2% which is less than the value of R^2 which shows that model is over fit.

Table 8: Equality of Means between Series

Test for Equality of Means Between Series

Method	df	Value	Probability
Anova F-test	(7, 1504)	17.87120	0.0000
Welch F-test*	(7, 618.77)	11.05410	0.0000
*Test allows for unequal cell variances			
Analysis of Variance			
Source of Variation	df	Sum of Sq.	Mean Sq.
Between	7	2.96E+11	4.23E+10
Within	1504	3.56E+12	2.36E+09
Total	1511	3.85E+12	2.55E+09
Category Statistics			
Variable	Count	Mean	Std. Dev.	Std. Err. of Mean
DP	189	0.610425	4.678004	0.340275
Ln(DY)	189	42295.16	137536.5	10004.31
EV	189	0.156694	1.471120	0.107008
GA	189	8.897648	93.43448	6.796359
INFV	189	-1.23E-17	0.341853	0.024866
INTV	189	-4.04E-19	0.197765	0.014385
MV	189	1.47E-19	0.239926	0.017452
Ln(PV)	189	8.453864	15.96500	1.161283
All	1512	5289.160	50491.07	1298.490

As we have relatively a less no of cross sections with moderate number of observation for each company. The test allows for unequal test for cell variances. However data with large cross sections are more justifiable for the above test.

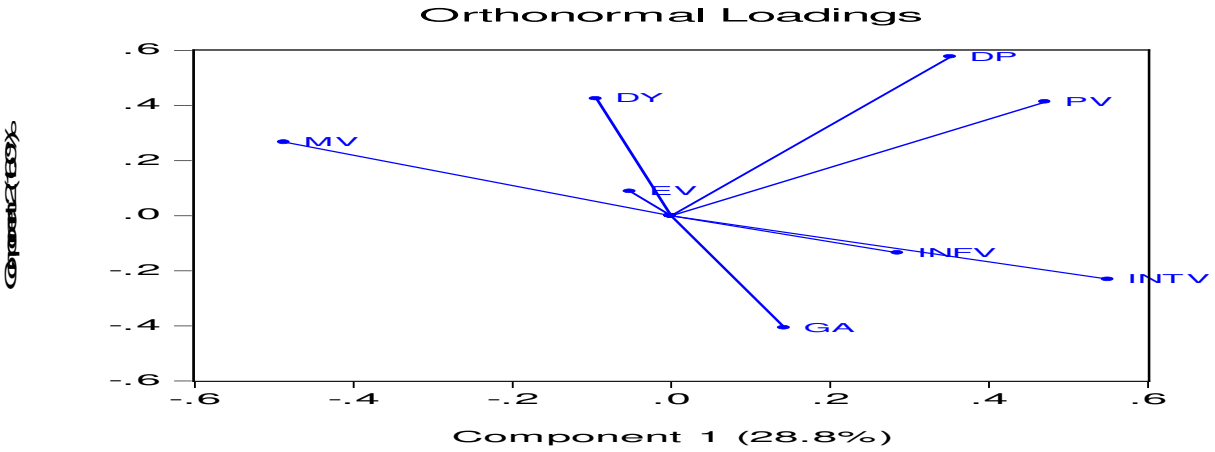

Figure 2: Orthonormal Loadings of Factors

Figure 2 indicates the Orthonormal loadings of the factors and their direction behavior in the panel to inspire the price volatility.

Table 9: Summary of the Results: Juxtaposition of Micro and Macro Dynamics of Dividend Policy on Stock Price Volatility in Financial Sector of Pakistan

	Correlation	Panel least Square	Fixed Effect Model	Random Effect Model	Generalized Model of Movement
DP	Sig. positive	Sig. positive	Sig. positive	Sig. positive	Sig. positive
Ln(DY)	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
EV	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
GA	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
INFV	Sig. positive	Sig. positive	Sig. positive	Sig. positive	Sig. positive
INTV	Sig. positive	Sig. positive	Sig. positive	Sig. positive	Sig. positive
MV	Sig. positive	Insignificant	Sig. Negative	Sig. Negative	Sig. Negative

5. Conclusion

Correlation indicates that dividend payout ratio, market value and interest volatility have positive significance correlation with price volatility as well as inflation volatility also has positive correlation with price volatility. On the other hand dividend yield, earning volatility and growth in assets have no significance relationship with price volatility. Common effect model indicates that the dividend payout has a significant positive impact on the commercial banks share prices. Dividend yield and earning volatility has positive insignificant impact on commercial banks share price volatility. The growth in 0assets has

an insignificant negative impact on the share price volatility. The inflation volatility has positive insignificant impact on share price volatility and interest volatility has positive significant impact on commercial banks share price volatility. The market price (MV) has negative insignificant impact on commercial banks share prices.

Fixed model indicates that the dividend payout has a significant positive impact on share prices but on the other hand the coefficient values of dividend yield and earning volatility are not significant at any level. The market volatility indicates that MV has negative significant impact on share price volatility. The results are not coherent with Asghar et al. (2011) and Nazir et al. (2012). However this study indicates that price volatility have positive correlation but the result of Habib et al. (2012) and iqbal et al. (2014) have negative significant association with price volatility.

Fixed effect has more explanatory power on dependent variable than common effect model. According to Random effect model shows that dividend payout has a significant positive impact on the share prices but on the other hand the dividend yield, earning volatility, growth in assets, inflation have no significant impact on price volatility. The interest volatility has positive significant impact on share prices. The market volatility has negative significant impact on share prices. Random effect has lesser explanatory power that fixed effect model. Hausman test shows that the variation value of dividend payout and interest volatility is significant, which shows that fixed effect model is more appropriate and good than random effect model. GMM model indicates that dividend payout has a significant positive impact on the commercial banks share prices but on the other hand interest volatility has positive significant impact as well as Market Value has significant negative effect. GMM model has greater robustness than common, fixed and random effect.

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